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Mr. K. M. Jones
K-303-7

Mr. H. G. P. Snyder
Production Division Central Files
File

Plant: Oak Ridge Gaseous Diffusion

Date: August 12, 1957

Subject: Area 5 Summary of Special Work Activities and Improvements for the period January through June, 1957.

KP-1259

The following progress report is a summary of special work activities and improvements in Area 5 for the period January through June, 1957.

K-306 Shutdown and Standby Operations (1)

The major activity of the report period was the shutdown of the K-306 section. This work was begun March 3, 1957, and was completed March 28, 1957. All units in the section were treated with ClF_3, purged, and brought to atmospheric pressure. The ammeter controller was tied into cells 6 and 8 in K-305-12 when K-305-12.8 became the normal product cell. Line recorders were slaved to the ACR to monitor the line recorders in the K-305 section. Power instrumentation was changed to record the K-305 section load. All coolant systems were drained and the water lines to the coolant coolers were disconnected.

Several piping changes were made in K-305-12 and K-306-7 as a result of having K-305-12.8 as the product cell. The PW feed and return lines from K-305-12 were routed through the 'A' and 'B' normal unit bypass lines of the K-306 section, and the 'A' and 'B' cell bypass lines on the even side of K-306-7 over cell 6. Two 12-point micromaxes were installed in the ACR to record temperatures from 24 TE's located in the K-306 section unit bypass lines. Gammagraph probes were relocated to the front or unit bypass end of the K-306 units. Weekly radiation surveys are made of the unit block valves. These measures should detect possible condensation of material in this section.

The lubricating oil in the K-306 section is presently being reconditioned by the use of a Hilco oil filter using Fuller's Earth as the filtering medium. This has been completed in K-306-1. The interfacial tension of the oil was increased from 16 sus to 22 sus. This work will continue until all of the oil in the K-306 section has been filtered.

Further standby preparations were the removal of seals and installation of dressers on seal housings. This provides dry air protection for the seal cavity, the compressors, the converters, and the cell process equipment. Decontamination of the seals provides additional recovery of uranium. Seal maintenance was started in K-306-7 and dressers have been installed on all compressors in K-306-6 and 7. Bearings and seal cover plates have been removed on all compressors up to the even cells of K-306-4. Couplings have been disconnected on

(1) Sheldon, G. T. E. and Klobe, J. S., K-306 Section Shutdown and Standby Operations: June 3, 1957: KP-1200, Revision 1.

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the withdrawal alley side of cells 2, 4, 6, 8, 10, and 12 in K-306-3. Cascade equipment cleaners have cleaned all motors and compressors in the K-306 section.

Transformers in the K-306 section were energized with a 60 cycle, 2300 volt supply to keep the feeders and the transformers dry.

Regular monitoring of the air in K-306 for air borne contamination was initiated. The highest air count was 0.45 $c/m/ft^3$. This was done to provide a long range study of conditions which exist after a unit has been shut down and pressured to atmosphere.

Transfer of Area 4 Units to Area 5

At 0001, April 12, 1957, units K-305-8, 9, 10, and 11 were transferred to Area 5 as a result of the shutdown of the K-306 section to provide a better distribution of effort in the operating units.

Purge System

The stacks venting the purge gases in K-312-1 and K-312-3 have had short lives (one year) due to a very high corrosion rate. Moisture combining with the various "lites" being purged provided a large number of corrosive compounds, mainly fluorine derivatives. Relocation of the blowers in the pipe gallery provides the suction of the blowers with a fairly dry air supply from inside the unit inhibiting stack corrosion. The stack for K-312-3 has been installed and work is proceeding on the stack for K-312-1.

Projects

In April, 1957, a Constant Pressure Analyzer was installed in the PW lines in K-306-7 for determining the per cent UF_6 in the process stream. Presently both the CPA and the X-ray machines are operating and data from both analyzers are being recorded. Results obtained from the CPA are in close agreement with bulb sample analyses. The CPA has the following advantages over the X-ray: low initial cost, no electronic equipment, very simple construction with practically no maintenance requirements.

General Area

High pressure and low temperature alarms for the K-305-12 and K-306-1 surge drums were installed in the K-306-1 Line Recorder Station and in the ACR to monitor the system for conditions which might cause condensation.

A switch was installed on the space recorder in the ACR so that the ACR and CCR slaves would be recording results from the same space recorders.

The installation of recirculating oil lines on the motors in the K-305 section was completed during this period in conjunction with the motor and impeller changes in the size 3 improvement program.

G. T. E. Sheldon

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